

LISTING OF CLAIMS

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1-24. (Cancelled)

25. (Currently Amended) A method of fabricating a compound semiconductor device, comprising the steps of:

(a) forming a first group III-V compound semiconductor layer not containing N epitaxially on a substrate;

(b) exposing a surface of said first group III-V compound semiconductor layer to an atmosphere containing N;

(c) forming, after said step (b), a second group III-V compound semiconductor layer on said first group III-V compound semiconductor layer epitaxially, said second group III-V compound semiconductor layer containing therein N as a group V element,

wherein said atmosphere is substantially free from a group III element.

26. (Original) A method as claimed in claim 25, wherein said atmosphere contains an organic nitrogen compound and a source gas of a group V element other than N.

27. (Original) A method as claimed in claim 25, wherein said atmosphere contains DMHy.

28. (Original) A method as claimed in claim 27, wherein said step of exposure is conducted at a temperature of about 600°C.

29-34. (Cancelled)

35. (Original) A method of fabricating a semiconductor layered structure comprising a first epitaxial layer of AlGaInNP having a composition represented by compositional parameters x_1 , y_1 and z_1 as $\text{Al}_{x_1}\text{Ga}_{y_1}\text{In}_{(1-x_1-y_1)}\text{N}_{z_1}\text{P}_{(1-z_1)}$ ($0 \leq x_1 < 1$, $0 < y_1 \leq 1$, $0 < z_1 < 1$), a second epitaxial layer of AlGaInP having a composition represented by compositional parameters x_2 and y_2 as $\text{Al}_{x_2}\text{Ga}_{y_2}\text{In}_{(1-x_2-y_2)}\text{P}$, said second epitaxial layer being disposed adjacent to said first epitaxial layer, and a third epitaxial layer of AlGaInP having a composition represented by compositional parameters x_3 and y_3 as $\text{Al}_{x_3}\text{Ga}_{y_3}\text{In}_{(1-x_3-y_3)}\text{P}$, said third epitaxial layer being disposed between said first and second epitaxial layers, said first through third epitaxial layers maintaining an epitaxy with each other, said compositional parameters being set so as to satisfy the relationship $0 \leq x_3 < x_2 \leq 1$; $0 < y_3 \leq 1$,

said method comprising the steps of:

forming said first epitaxial layer by using a metal organic compound of Al for the source of Al;

forming said second epitaxial layer by using a metal organic compound of Al for the source of Al; and

forming said third epitaxial layer by using a metal organic compound of Al for the source of Al.

36. (Original) A method as claimed in claim 35, wherein said step of forming said first epitaxial layer is conducted further by using an organic compound of N as the source of N.

37. (Original) A method as claimed in claim 36, wherein said organic compound is selected from one of dimethylhydrazine and monomethylhydrazine.